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# SEQUENCE LISTING

<110> HATTORI, NORIAKI  
MURAKAMI, SEIJI

<120> LUCIFERASE AND A METHOD FOR DETECTING INTRACELLULAR ATP USING THE  
SAME

<130> 193582US-3524-7126-0 PCT

<140> 09/581241

<141> 2000-06-26

<150> JP97/361022

<151> 1997-12-26

<160> 8

<170> PatentIn version 3.2

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Phe Tyr Pro Ile Glu Glu Gly Ser Ala Gly Ala Gln Leu Arg Lys Tyr	
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Met Asp Arg Tyr Ala Lys Leu Gly Ala Ile Ala Phe Thr Asn Ala Leu	
35 40 45	
acc ggt gtc gat tat acg tac gcc gaa tac tta gaa aaa tca tgc tgt	192
Thr Gly Val Asp Tyr Thr Tyr Ala Glu Tyr Leu Glu Lys Ser Cys Cys	
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cta gga gag gct tta aag aat tat ggt ttg gtt gtt gat gga aga att	240
Leu Gly Glu Ala Leu Lys Asn Tyr Gly Leu Val Val Asp Gly Arg Ile	
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gcg tta tgc agt gaa aac tgt gaa gaa ttc ttt att cct gta tta gcc	288
Ala Leu Cys Ser Glu Asn Cys Glu Glu Phe Phe Ile Pro Val Leu Ala	
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Gly Leu Phe Ile Gly Val Gly Val Ala Pro Thr Asn Glu Ile Tyr Thr	
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cta cgt gaa ttg gtt cac agt tta ggc atc tct aag cca aca att gta	384
Leu Arg Glu Leu Val His Ser Leu Gly Ile Ser Lys Pro Thr Ile Val	
115 120 125	
ttt agt tct aaa aaa gga tta gat aaa gtt ata act gta caa aaa acg	432
Phe Ser Ser Lys Lys Gly Leu Asp Lys Val Ile Thr Val Gln Lys Thr	
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gta act gct att aaa acc att gtt ata ttg gac agc aaa gtg gat tat	480
Val Thr Ala Ile Lys Thr Ile Val Ile Leu Asp Ser Lys Val Asp Tyr	
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aga ggt tat caa tcc atg gac aac ttt att aaa aaa aac act cca caa	528
Arg Gly Tyr Gln Ser Met Asp Asn Phe Ile Lys Lys Asn Thr Pro Gln	
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Gly Phe Lys Gly Ser Ser Phe Lys Thr Val Glu Val Asn Arg Lys Glu	
180 185 190	
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Gln Val Ala Leu Ile Met Asn Ser Ser Gly Ser Thr Gly Leu Pro Lys	
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Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro	
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Glu Leu Pro Gly Ala Val Val Val Leu Lys Lys Gly Lys Ser Met Thr	
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Glu Lys Glu Val Met Asp Tyr Val Ala Ser Gln Val Ser Asn Ala Lys	
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 Gly Leu Phe Ile Gly Val Gly Val Ala Pro Thr Asn Glu Ile Tyr Thr  
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Arg Gly Tyr Gln Ser Met Asp Asn Phe Ile Lys Lys Asn Thr Pro Gln  
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Gln Val Ala Leu Ile Met Asn Ser Ser Gly Ser Thr Gly Leu Pro Lys  
 195 200 205

Gly Val Gln Leu Thr His Glu Asn Ile Val Thr Arg Phe Ser His Ala  
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Arg Asp Pro Ile Tyr Gly Asn Gln Val Ser Pro Gly Thr Ala Ile Leu  
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Thr Val Val Pro Phe His His Gly Phe Gly Met Phe Thr Thr Leu Gly  
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Tyr Leu Thr Cys Gly Phe Arg Ile Val Met Leu Thr Lys Phe Asp Glu  
 260 265 270

Glu Thr Phe Leu Lys Thr Leu Gln Asp Tyr Lys Cys Ser Ser Val Ile  
 275 280 285

Leu Val Pro Thr Leu Phe Ala Ile Leu Asn Arg Ser Glu Leu Leu Asp

290

295

300

Lys Tyr Asp Leu Ser Asn Leu Val Glu Ile Ala Ser Gly Gly Ala Pro  
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Leu Ser Lys Glu Ile Gly Glu Ala Val Ala Arg Arg Phe Asn Leu Pro  
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Gly Val Arg Gln Gly Tyr Gly Leu Thr Glu Thr Thr Ser Ala Ile Ile  
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Ile Thr Pro Glu Gly Asp Asp Lys Pro Gly Ala Ser Gly Lys Val Val  
 355 360 365

Pro Leu Phe Lys Ala Lys Val Ile Asp Leu Asp Thr Lys Lys Thr Leu  
 370 375 380

Gly Pro Asn Arg Arg Gly Glu Val Cys Val Lys Gly Pro Met Leu Met  
 385 390 395 400

Lys Gly Tyr Val Asp Asn Pro Glu Ala Thr Arg Glu Ile Ile Asp Glu  
 405 410 415

Glu Gly Trp Leu His Thr Gly Asp Ile Gly Tyr Tyr Asp Glu Glu Lys  
 420 425 430

His Phe Phe Ile Val Asp Arg Leu Lys Ser Leu Ile Lys Tyr Lys Gly  
 435 440 445

Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro  
 450 455 460

Asn Ile Phe Asp Ala Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly  
 465 470 475 480

Glu Leu Pro Gly Ala Val Val Val Leu Lys Lys Gly Lys Ser Met Thr  
 485 490 495

Glu Lys Glu Val Met Asp Tyr Val Ala Ser Gln Val Ser Asn Ala Lys

500

505

510

Arg Leu Arg Gly Gly Val Arg Phe Val Asp Glu Val Pro Lys Gly Leu  
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 Phe Tyr Pro Ile Glu Glu Gly Ser Ala Gly Ala Gln Leu Arg Lys Tyr  
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 Met Asp Arg Tyr Ala Lys Leu Gly Ala Ile Ala Phe Thr Asn Ala Leu  
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 acc ggt gtc gat tat acg tac gcc gaa tac tta gaa aaa tca tgc tgt 192  
 Thr Gly Val Asp Tyr Thr Tyr Ala Glu Tyr Leu Glu Lys Ser Cys Cys  
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 gcg tta tgc agt gaa aac tgt gaa gaa ttc ttt att cct gta tta gcc 288  
 Ala Leu Cys Ser Glu Asn Cys Glu Glu Phe Phe Ile Pro Val Leu Ala  
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 Gly Leu Phe Ile Gly Val Gly Val Ala Pro Thr Asn Glu Ile Tyr Thr

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ttt	agt	tct	aaa	aaa	gga	tta	gat	aaa	gtt	ata	act	gta	caa	aaa	acg	432		
Phe	Ser	Ser	Lys	Lys	Gly	Leu	Asp	Lys	Val	Ile	Thr	Val	Gln	Lys	Thr			
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ggg	ttc	aaa	gga	tca	agt	ttt	aaa	act	gta	gaa	gtt	aac	cgc	aaa	gaa	576		
Gly	Phe	Lys	Gly	Ser	Ser	Phe	Lys	Thr	Val	Glu	Val	Asn	Arg	Lys	Glu			
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caa	gtt	gct	ctt	ata	atg	aac	tct	tcg	ggg	tca	acc	ggg	ttg	cca	aaa	624		
Gln	Val	Ala	Leu	Ile	Met	Asn	Ser	Ser	Gly	Ser	Thr	Gly	Leu	Pro	Lys			
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Gly	Val	Gln	Leu	Thr	His	Glu	Asn	Ala	Val	Thr	Arg	Phe	Ser	His	Ala			
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Thr	Val	Val	Pro	Phe	His	His	Gly	Phe	Gly	Met	Phe	Thr	Thr	Leu	Gly			
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Tyr	Leu	Thr	Cys	Gly	Phe	Arg	Ile	Val	Met	Leu	Thr	Lys	Phe	Asp	Glu			
			260					265					270					
gag	act	ttt	tta	aaa	aca	ctg	caa	gat	tac	aaa	tgt	tca	agc	gtt	att	864		
Glu	Thr	Phe	Leu	Lys	Thr	Leu	Gln	Asp	Tyr	Lys	Cys	Ser	Ser	Val	Ile			
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ctt	gta	ccg	act	ttg	ttt	gca	att	ctt	aat	aga	agt	gaa	tta	ctc	gat	912		
Leu	Val	Pro	Thr	Leu	Phe	Ala	Ile	Leu	Asn	Arg	Ser	Glu	Leu	Leu	Asp			
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Leu Ser Lys Glu Ile Gly Glu Ala Val Ala Arg Arg Phe Asn Leu Pro							
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Gly Val Arg Gln Gly Tyr Gly Leu Thr Glu Thr Thr Ser Ala Ile Ile							
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Ile Thr Pro Glu Gly Asp Asp Lys Pro Gly Ala Ser Gly Lys Val Val							
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cca tta ttt aaa gca aaa gtt atc gat ctt gat act aaa aaa act ttg							1152
Pro Leu Phe Lys Ala Lys Val Ile Asp Leu Asp Thr Lys Lys Thr Leu							
		370		375		380	
ggc ccg aac aga cgt gga gaa gtt tgt gta aag ggt cct atg ctt atg							1200
Gly Pro Asn Arg Arg Gly Glu Val Cys Val Lys Gly Pro Met Leu Met							
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aaa ggt tat gta gat aat cca gaa gca aca aga gaa atc ata gat gaa							1248
Lys Gly Tyr Val Asp Asn Pro Glu Ala Thr Arg Glu Ile Ile Asp Glu							
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gaa ggt tgg ttg cac aca gga gat att ggg tat tac gat gaa gaa aaa							1296
Glu Gly Trp Leu His Thr Gly Asp Ile Gly Tyr Tyr Asp Glu Glu Lys							
		420		425		430	
cat ttc ttt atc gtg gat cgt ttg aag tct tta atc aaa tac aaa gga							1344
His Phe Phe Ile Val Asp Arg Leu Lys Ser Leu Ile Lys Tyr Lys Gly							
		435		440		445	
tat caa gta cca cct gct gaa tta gaa tct gtt ctt ttg caa cat cca							1392
Tyr Gln Val Pro Pro Ala Glu Leu Glu Ser Val Leu Leu Gln His Pro							
		450		455		460	
aat att ttt gat gcc ggc gtt gct ggc gtt cca gat cct ata gct ggt							1440
Asn Ile Phe Asp Ala Gly Val Ala Gly Val Pro Asp Pro Ile Ala Gly							
		465		470		475	480
gag ctt ccg gga gct gtt gtt gta ctt gaa aaa gga aaa tct atg act							1488
Glu Leu Pro Gly Ala Val Val Val Leu Glu Lys Gly Lys Ser Met Thr							
		485		490		495	
gaa aaa gaa gta atg gat tac gtt gct agt caa gtt tca aat gca aaa							1536
Glu Lys Glu Val Met Asp Tyr Val Ala Ser Gln Val Ser Asn Ala Lys							
		500		505		510	
cgt ttg cgt ggt ggt gtc cgt ttt gtg gac gaa gta cct aaa ggt ctc							1584
Arg Leu Arg Gly Gly Val Arg Phe Val Asp Glu Val Pro Lys Gly Leu							



515

520

525

act ggt aaa att gac ggt aaa gca att aga gaa ata ctg aag aaa cca 1632  
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gtt gct aag atg 1644  
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Thr Gly Val Asp Tyr Thr Tyr Ala Glu Tyr Leu Glu Lys Ser Cys Cys  
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Leu Gly Glu Ala Leu Lys Asn Tyr Gly Leu Val Val Asp Gly Arg Ile  
 65 70 75 80

Ala Leu Cys Ser Glu Asn Cys Glu Glu Phe Phe Ile Pro Val Leu Ala  
 85 90 95

Gly Leu Phe Ile Gly Val Gly Val Ala Pro Thr Asn Glu Ile Tyr Thr  
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Leu Arg Glu Leu Val His Ser Leu Gly Ile Ser Lys Pro Thr Ile Val  
 115 120 125

Phe Ser Ser Lys Lys Gly Leu Asp Lys Val Ile Thr Val Gln Lys Thr  
 130 135 140

Val Thr Ala Ile Lys Thr Ile Val Ile Leu Asp Ser Lys Val Asp Tyr  
145 150 155 160

Arg Gly Tyr Gln Ser Met Asp Asn Phe Ile Lys Lys Asn Thr Pro Gln  
165 170 175

Gly Phe Lys Gly Ser Ser Phe Lys Thr Val Glu Val Asn Arg Lys Glu  
180 185 190

Gln Val Ala Leu Ile Met Asn Ser Ser Gly Ser Thr Gly Leu Pro Lys  
195 200 205

Gly Val Gln Leu Thr His Glu Asn Ala Val Thr Arg Phe Ser His Ala  
210 215 220

Arg Asp Pro Ile Tyr Gly Asn Gln Val Ser Pro Gly Thr Ala Ile Leu  
225 230 235 240

Thr Val Val Pro Phe His His Gly Phe Gly Met Phe Thr Thr Leu Gly  
245 250 255

Tyr Leu Thr Cys Gly Phe Arg Ile Val Met Leu Thr Lys Phe Asp Glu  
260 265 270

Glu Thr Phe Leu Lys Thr Leu Gln Asp Tyr Lys Cys Ser Ser Val Ile  
275 280 285

Leu Val Pro Thr Leu Phe Ala Ile Leu Asn Arg Ser Glu Leu Leu Asp  
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Lys Tyr Asp Leu Ser Asn Leu Val Glu Ile Ala Ser Gly Gly Ala Pro  
305 310 315 320

Leu Ser Lys Glu Ile Gly Glu Ala Val Ala Arg Arg Phe Asn Leu Pro  
325 330 335

Gly Val Arg Gln Gly Tyr Gly Leu Thr Glu Thr Thr Ser Ala Ile Ile  
340 345 350

Ile	Thr	Pro	Glu	Gly	Asp	Asp	Lys	Pro	Gly	Ala	Ser	Gly	Lys	Val	Val	355	360	365
Pro	Leu	Phe	Lys	Ala	Lys	Val	Ile	Asp	Leu	Asp	Thr	Lys	Lys	Thr	Leu	370	375	380
Gly	Pro	Asn	Arg	Arg	Gly	Glu	Val	Cys	Val	Lys	Gly	Pro	Met	Leu	Met	385	390	395
Lys	Gly	Tyr	Val	Asp	Asn	Pro	Glu	Ala	Thr	Arg	Glu	Ile	Ile	Asp	Glu	405	410	415
Glu	Gly	Trp	Leu	His	Thr	Gly	Asp	Ile	Gly	Tyr	Tyr	Asp	Glu	Glu	Lys	420	425	430
His	Phe	Phe	Ile	Val	Asp	Arg	Leu	Lys	Ser	Leu	Ile	Lys	Tyr	Lys	Gly	435	440	445
Tyr	Gln	Val	Pro	Pro	Ala	Glu	Leu	Glu	Ser	Val	Leu	Leu	Gln	His	Pro	450	455	460
Asn	Ile	Phe	Asp	Ala	Gly	Val	Ala	Gly	Val	Pro	Asp	Pro	Ile	Ala	Gly	465	470	475
Glu	Leu	Pro	Gly	Ala	Val	Val	Val	Leu	Glu	Lys	Gly	Lys	Ser	Met	Thr	485	490	495
Glu	Lys	Glu	Val	Met	Asp	Tyr	Val	Ala	Ser	Gln	Val	Ser	Asn	Ala	Lys	500	505	510
Arg	Leu	Arg	Gly	Gly	Val	Arg	Phe	Val	Asp	Glu	Val	Pro	Lys	Gly	Leu	515	520	525
Thr	Gly	Lys	Ile	Asp	Gly	Lys	Ala	Ile	Arg	Glu	Ile	Leu	Lys	Lys	Pro	530	535	540
Val	Ala	Lys	Met													545		